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ABSTRACT

This paper presents an overview of the findings and implications of an ongoing 5-year collaborative action research project conducted by university faculty and classroom teachers in a large urban school district in the southeastern United States. Based on the premise that participation in research empowers teachers to take action to improve schools, the project both supports and encourages the involvement of practicing classroom teachers in research projects. The document provides a framework for examining: (1) the development of a teacher-mentor model that offers a foundation for school improvement by enhancing teachers' research interests; and (2) the capability of teachers to conduct and do research (an analysis of requirements). A prototype model for developing the capability of teachers to do research is described. The model advocates some form of apprenticeship and focuses on the means through which a collegial relationship (teacher-researcher) can evolve into a type of apprenticeship relationship (apprentice-mentor) through which teachers can pursue the substantive knowledge and research tools they need to become colleagues as practicing researchers in the field of science education. (LL)

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SHORT PAPER

EVOLUTION OF A 5-YEAR ACTION RESEARCH PROJECT: RESULTS AND IMPLICATIONS FOR EMPOWERING SCHOOL IMPROVEMENT

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Abstract

Overviewed are findings and implications of an ongoing 5-year collaborative action research project involving teachers in a large urban school district in the southeast. Emphasized in the paper is the development of a teacher-mentor model that develops a foundation for school improvement by enhancing the research interests and capabilities of teachers in an evolutionary fashion.

Teacher-Based Action Research: Standards and Value

The purpose of this paper is to describe an ongoing strategy through which the involvement of practicing classroom teachers in research can be encouraged and supported. By way of contrast to those who view action research (see Cook, 1984; Smulyan, 1984) as a unique "type" or "category" of research and/or who consider the predominant issue of teacher's involvement in research to be "political or social empowerment" (e.g., McTaggart, 1991), our perspective follows from views (Argyris & Schon, 1989; Smulyan, 1983) that consider "teacher-based action research" to be a goal whose ultimate benefits are twofold. First, from the standpoint of committed teachers, we feel their active involvement in the research community is an important and potentially satisfying element of their professional life to which significant barriers exist. And, second, we feel strongly that if more teachers were to conduct "sound" educational research, such efforts ultimately would contribute to the improvement of schools and schooling. In this sense, we are less concerned with semantics of what action research is (vs other research) than with the function of what teachers are able to contribute to the discipline of education through their research efforts. At the same time, subject to the constraints above, if an important personal motivation of teachers in conducting research in their schools is to improve the school environment within which they themselves work (e.g., Gebhard, 1989), then we are very comfortable labeling such pursuits as "action research" and advocating "teacher empowerment". However, in doing so, we are insistent, whatever their research interests and work might entail, that the standards it must meet and its substantive value to the discipline of education are those appropriate for all such research endeavors (cf., Watkins, 1991). In this sense, all good research helps contribute toward knowledge that, in turn, empowers teachers to take action to improve schools.

The Capability of Teachers to Conduct Research: Practice Doesn't Make Perfect Unless...

Adopting the goal of working to encourage teachers to participate in the conduct of sound research that meets accepted standards of practice is a stringent criterion to meet, but we feel there is no alternative. As a result, we view present policy that simply infuses funds into schools for

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"teacher-initiated" or "school-based" research as a strategy that (however well-intentioned) is unwise. This is because having teachers "just do research" (or having "just teachers do research") only makes sense when teachers are able to frame research questions they address in their settings within the context of sound methodological practices and existing substantive knowledge in the literature. In truth, our concern here is not so much that the funds are wasted because the amounts are small. But rather, it is that the scenario in which teachers without adequate skills, minimal substantive prior knowledge, and severely limited (nonaccessible) research support in the form of expertise naively commit themselves to assume a great deal of pressure (e.g., Nixon, 1987) and an associated high risk of failure that could quash their motivation to do research. Thus, placing individuals in situations in which they are likely to fail while leading them to believe they should be successful is not a sound strategy for building a long-term capability. Without providing the levels of support teachers need to be successful in the conduct of research, it is unlikely that teachers will become so simply by "doing". Complementing the dangers to teachers themselves is the overriding context of such scenarios that implicitly advocate that if teachers cannot do effective research, then effective research cannot be done at all.

Developing the Capability of Teachers to Do Research: An Analysis of Requirements

Viewing the standards of practice teacher-based research must meet as those established in the research field in general provides both a certain focus on what capabilities should be developed and some guidelines on how best to develop them. More specifically, what teachers need to support their efforts to do research are the same things that anyone doing research would require, with some adjustments (in comparison to experienced researchers) for levels of preparation, levels of experience, and barriers in the specific research environment.

An Ideal Apprenticeship Model. Under ideal circumstances, some form of apprenticeship model would likely be the best (and most certain way) to gain research expertise. Apprenticeships are always appropriate whenever three conditions obtain: (a) established standards of practice exist, (b) practicing experts can be identified, and (c) how to develop expertise is not well understood (or is an ill-defined" domain). Such is the case for educational research, so, as a result, apprenticeship is how most practicing researchers gain their expertise. While this does not mean that significant knowledge cannot be learned without an apprenticeship experience, it does mean that these other sources of knowledge are incomplete.

In the field of research, doctoral study in higher education in many cases provides such an ideal apprenticeship experience. In such cases, graduate students are pursuing advanced knowledge in their discipline while working with one or more faculty members who are actively engaged in all aspects of the research process for a period of years. Under such circumstances, students are introduced to and gradually are able to assume increasing responsibility in the conduct, planning, and design of research within the context of the literature in the area(s) being investigated. In doing so, students operate within a supportive environment in which all of the means for conducting research exist and whose characteristics they come to understand. In complementing other aspects of their programs of study, the apprenticeship may be narrow or broad. If students work with a single faculty member on a specific type of problem, then they become specialists. If they work with different faculty on a wider range of different topics, then they gain a broader perspective. In either case, as they are able to meet the standards implied by an apprenticeship experience, their relationship with faculty is transformed into a collegial one that is mutually beneficial.

Teaching in Schools as a Weak Apprenticeship Environment. Although teachers in schools may be in a rich problem environment, they are in a poor apprenticeship one. The operating characteristics and dynamics of schools are contrary to what a supportive research environment would be, even for an experienced researcher. Worse yet, teachers themselves ordinarily have no graduate preparation to do research beyond a textbook course or two in "methods" and some reading about research in their other coursework, all of which occurrs without their being involved in apprenticeship research activity. To complicate matters, research is hard work and difficult to do successfully even for experienced

researchers. For teachers as novice researchers who have major responsibilities to their teaching duties, this is a significant barrier in itself. Thus, teachers in the field face a hostile and unsupportive environment insofar as research productivity is concerned. And, by including teachers themselves as part of this environment, it is important to recognize that the characteristic ways teachers have learned to think about problems is another part of the problem-puzzle that serves as a barrier to their gaining research expertise. This is because teachers themselves are encouraged to consider professionally acceptable knowledge as an absolute that is coincident with authority and policy to which the appropriate perspective is one of commitment and enthusiasm that is in direct opposition to the technically skeptical attitude researchers must assume in order to analyze problems objectively. Faced with such an additudinal scenario, we believe it unrealistic to expect teachers to be successful researchers without substantially redesigning the environment within which they work by adding significant enhancements that support that pursuit.

Toward A Prototype Model for Developing the Capability of Teachers to Do Research

The model described and advocated here is one that has evolved as a natural consequence of working with teachers collegially in a science education research project over the past several years.

Emergence of the Model. The initial project (Romance & Vitale, 1992) through which the model emerged involved replacing all of grade 4 reading and language arts instruction (a 2-hour time block) with in-depth science instruction in which three teachers participated. However, what is of interest for the purposes here is not the project itself, but rather the means through which what began as a collegial relationship (teacher-researcher) has evolved into a type of apprenticeship relationship (apprentice-mentor) through which teachers are pursuing the substantive knowledge and research tools they need to become colleagues as practicing researchers in the field of science education.

The specific details of this evolution in terms of stages were as follows:

- First, the research project came about through initial discussions motivated by the interests of the teachers to improve reading and by the interests of the researchers to improve science teaching (hence the content area reading in science focus).

- Second, the teachers initially participated in the study by implementing the curriculum strategy which itself was developed in a collegial teacher-researcher fashion. As a result of the effectiveness of the treatment, the teachers became interested in questions regarding how to make the strategy more effective.

- Third, as the study expanded to include new teachers in their school and in other schools, these three teachers assumed an increasingly active role in the implementation (e.g., teacher training, mentor support) and planning of the project from an instructional point of view (not a research one).

- Fourth, as a result of ongoing collegial discussions, teachers became interested in the questions of why the strategy worked (students achieved more in science and more in reading and displayed more positive attitudes and self-confidence in learning). And, in turn, teachers came to realize that in order to pursue these questions (which are presently not fully answered), they would need more advanced scholarly knowledge of research and theory in science education, reading, instructional design, cognitive science, and other areas.

- Fifth, as a result, these teachers encouraged the researchers (and the university faculty) to work to reactivate a doctoral program in curriculum and instruction that had been dormant for a number of years so that they could pursue further advanced graduate study (in which they are now enrolled).

- Sixth, as the involvement of the teachers in the project is broadened and they are able to identify their own research projects for school improvement (presently underway), their relationship to the researchers is undergoing transformation from apprentice to research colleague.

As the research project has expanded to include new teachers, the evolutionary process outlined above is at various stages of replication. Although not all teachers have the interests of the original group described above, it has turned out that many do. Thus, what is happening (through the establishment of a project mentor group) is the development of a group of teachers who have become interested (or are potentially interested) in gaining the capability to conduct "sound" action research that leads to school improvement, not only in the schools in which they work, but other school as well.

Characteristics of the Model. In considering the overall structure of the model above, it is clear that it includes almost all aspects of the "ideal" graduate training apprenticeship model discussed previously, with some significant differences regarding implementation. These differences (in contrast to the ideal graduate apprenticeship model) include:

- the initial research focus is of direct relevance to the teacher and establishes a teacher-researcher collegial relationship,
- the apprenticeship relationship evolves naturally from a collegial one (teacher-researcher) that is based upon mutual interest in the research topics being pursued,
- the apprenticeship portion (and associated support) is extended from the university environment to the school environment of the teacher,
- the apprenticeship role of the teachers is expanded within a supportive context that is encompassed by a high level of success,
- the academic portion is is added to the apprenticeship portion after the apprenticeship portion is well established,
- an explicit goal of the process is to change the form of collegial relationship from teacher-researcher to researcher-researcher within a meaningful research context rather than to develop both that relationship and knowledge of the context from scratch.

Finally, in parallel to the goals of graduate training (in which these teachers are enrolled), the model includes the means through which these relationships can be propagated to other teachers (and university faculty).

Summary and Implications

Although not formalized, we have found the model described above has much to offer in a positive way for the participants and for the profession. Ultimately, we believe models of this form will result in broader utilization of talents available in the profession to improve schools. We find the model exemplifies the values that many agree are important in developing human potential in many different ways. We anticipate that as much as any researchers work independently, these teachers increasingly will be likely to become able to conduct sound research that follows from the pursuit of understanding of phenomena in which they are interested. And this, of course, is the purpose of all scientific inquiry. All in all, we find this a very rich and positive model for developing the capacity of teachers to conduct action research, but more importantly to conduct substantively meaningful research that is sound.

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